

WHAT IS CLAIMED IS:

1. An organic electroluminescent device comprising in the following order:

- 5 a first electrode;
 a light emitting layer; and
 a second electrode,

 said light emitting layer containing two or more types of different luminescent materials, and at least one of said
10 two or more types of different luminescent materials being a phosphorescent material.

2. The organic electroluminescent device according to claim 1, wherein

- 15 said light emitting layer comprises a short wavelength light emitting layer and a long wavelength light emitting layer,

 at least one of the peak wavelengths of light emitted by said short wavelength light emitting layer being in a range
20 of 430 nm to 520 nm, and at least one of the peak wavelengths of light emitted by said long wavelength light emitting layer being in a range of 520 nm to 630 nm.

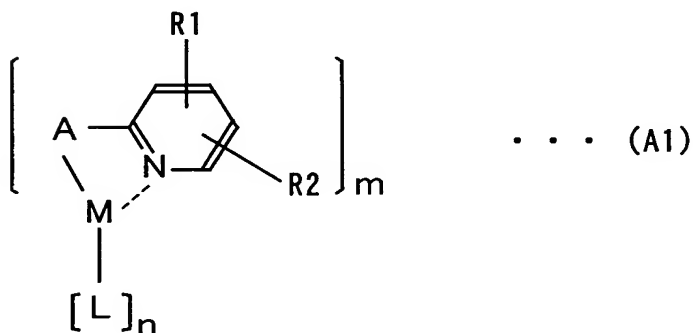
3. The organic electroluminescent device according to
25 claim 2, wherein

said long wavelength light emitting layer includes a first host material and a first phosphorescent material.

4. The organic electroluminescent device according to claim 3, wherein

said first phosphorescent material has a molecular structure expressed by the following formula (A1), and

in the formula (A1), A is a substituent, R1 and R2 are the same or different from each other, and are each a hydrogen atom, a halogen atom, or a substituent, L is a substituent, M is a heavy metal, m is 1, 2, or 3, and m and n satisfy a relationship of $2m + 2n = 6$ or $2m + n = 6$.



15

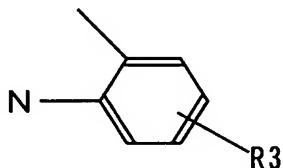
5. The organic electroluminescent device according to claim 4, wherein

said R1 is a hydrogen atom,

said R2 has a molecular structure expressed by the

following formula (A2), and

R3 in the formula (A2) is a hydrogen atom, a halogen atom, or a substituent.



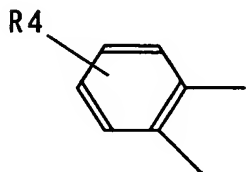
. . . (A2)

5

6. The organic electroluminescent device according to claim 4, wherein

10 said A has a molecular structure expressed by the following formula (A3), and

R4 in the formula (A3) is a hydrogen atom, a halogen atom, or a substituent.



. . . (A3)

15

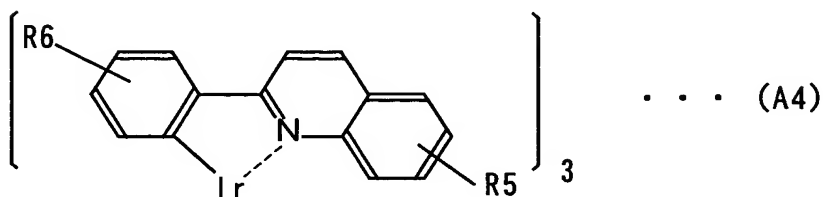
7. The organic electroluminescent device according to claim 4, wherein

said first phosphorescent material has a Tris(2-phenylquinoline)iridium skeleton having a molecular structure

expressed by the following formula (A4), and

R5 and R6 in the formula (A4) are the same or different from each other, and are each a hydrogen atom, a halogen atom, or a substituent.

5



8. The organic electroluminescent device according to claim 3, wherein

10 said first electrode is an anode, and said second electrode is a cathode,

 said long wavelength light emitting layer and said short wavelength light emitting layer are formed in this order between said anode and said cathode, and

15 said long wavelength light emitting layer further contains a first assisting dopant having a hole transport capability.

20 9. The organic electroluminescent device according to claim 8, wherein

 the volume ratio of the sum of said first phosphorescent

material and said first assisting dopant to said long wavelength light emitting layer is 3 to 40 %.

10. The organic electroluminescent device according to
5 claim 8, wherein

the energy level H6 of the highest occupied molecular orbit of said first host material, the energy level H4 of the highest occupied molecular orbit of said first phosphorescent material, and the energy level H5 of the highest occupied
10 molecular orbit of said first assisting dopant satisfy relationships given by the following expressions (5) to (7).

$$H4 < H5 < H6 \quad \dots (5)$$

$$|H6 - H5| < 0.4 \text{ eV} \quad \dots (6)$$

$$|H5 - H4| < 0.4 \text{ eV} \quad \dots (7)$$

15

11. The organic electroluminescent device according to claim 8, wherein

said first assisting dopant is composed of an amine-based material, an anthracene derivative, or an iridium
20 complex.

12. The organic electroluminescent device according to claim 3, wherein

the ratio of the maximum peak luminous intensity of the
25 light emitted by said long wavelength light emitting layer to

the maximum peak luminous intensity of the light emitted by said short wavelength light emitting layer is 100 : 20 to 100 : 100.

5 13. The organic electroluminescent device according to claim 3, wherein

 said first electrode is an anode, and said second electrode is a cathode,

 said long wavelength light emitting layer and said short
10 wavelength light emitting layer are formed in this order between said anode and said cathode,

 said short wavelength light emitting layer further contains a second host material and an assisting dopant, and

 said assisting dopant is composed of the same material
15 as said first host material.

 14. The organic electroluminescent device according to claim 13, wherein

 said short wavelength light emitting layer contains a
20 second phosphorescent material.

 15. The organic electroluminescent device according to claim 3, wherein

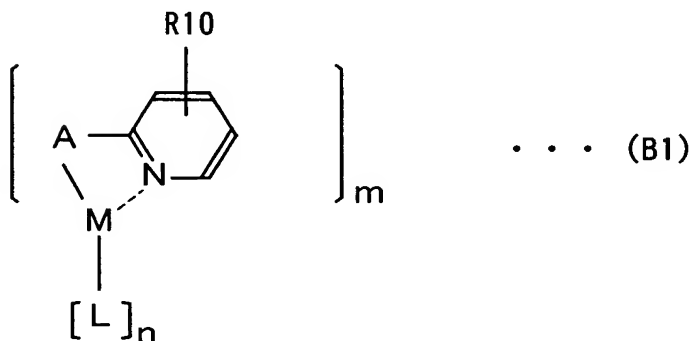
 said short wavelength light emitting layer contains a
25 second host material and a second phosphorescent material.

16. The organic electroluminescent device according to claim 15, wherein

said second phosphorescent material has a molecular structure expressed by the following formula (B1), and

in the formula (B1), A is a substituent, R10 is a hydrogen atom, a halogen atom, or a substituent, L is a substituent, M is a heavy metal, m is 1, 2, or 3, and m and n satisfy a relationship of $2m + 2n = 6$ or $2m + n = 6$.

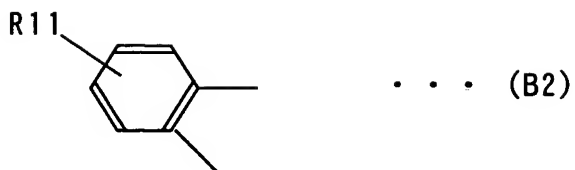
10



17. The organic electroluminescent device according to claim 16, wherein

15 said A has a molecular structure expressed by the following formula (B2), and

R11 in the formula (B2) is a hydrogen atom, a halogen atom, or a substituent.



5 18. The organic electroluminescent device according to claim 15, wherein

 said first electrode is an anode, and said second electrode is a cathode,

 said short wavelength light emitting layer and said long
10 wavelength light emitting layer are formed in this order between said anode and said cathode, and

 said short wavelength light emitting layer further contains a second assisting dopant having a hole transport capability.

15

 19. The organic electroluminescent device according to claim 18, wherein

 the volume ratio of the sum of said second phosphorescent material and said second assisting dopant to said short
20 wavelength light emitting layer is 3 to 40 %.

 20. The organic electroluminescent device according to

claim 18, wherein

the energy level H3 of the highest occupied molecular orbit of said second host material, the energy level H1 of the highest occupied molecular orbit of said second phosphorescent material, and the energy level H2 of the highest occupied molecular orbit of the second assisting dopant satisfy a relationship given by the following expression (9).

$$H1 < H2 < H3 \quad \dots (9)$$

21. The organic electroluminescent device according to claim 18, wherein

said second assisting dopant is composed of an amine-based material, an anthracene derivative, or an iridium complex.

22. The organic electroluminescent device according to claim 15, wherein

the ratio of the maximum peak luminous intensity of the light emitted by said short wavelength light emitting layer to the maximum peak luminous intensity of the light emitted by said long wavelength light emitting layer is 100 : 20 to 100 : 100.

23. The organic electroluminescent device according to claim 15, wherein

said first electrode is an anode, and said second electrode is a cathode,

said short wavelength light emitting layer and said long wavelength light emitting layer are formed in this order
5 between said anode and said cathode,

said long wavelength light emitting layer further contains a first host material,

said short wavelength light emitting layer further contains a second host material and an assisting dopant, and

10 said assisting dopant being composed of the same material as said first host material.

24. The organic electroluminescent device according to claim 2, wherein

15 said long wavelength light emitting layer contains a first host material and a first phosphorescent material,

said short wavelength light emitting layer contains a second host material, a second phosphorescent material, and an assisting dopant, and

20 said assisting dopant is composed of the same material as said first host material.